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Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2021-2022

Date:07.06.2021

TEST REPORT ON PAVING BITUMEN

Client :	**: Executive Engineer,** RR Nagar Division,BBMP,Bangalore.
Agency:	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of work:	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
BIS Code:	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing:	**07.06.2021**
Type of Mix:	**Dense Graded Bituminous Macadam , VG 30**
Source of Location:	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	50	Min 45
2	Softening point, 0C	48	Min 47
3	Ductility at 250C, cm	99	Min40
4	Flash Point, 0C	282	Min 220

Note:

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JobNo: SCE/BBMP/RL/17/2021-2022

Date: 07.06.2021

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : : **Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency: : **Sri. R Lokesh,** Contractor, Bangalore.

Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Source / Location Hot Mix Plant, Bangalore

BIS Code: IS 2386 Part (4):1963
Type of Mix: Dense Graded Bituminous Macadam
Date of test: 07.06.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	400	400	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	81	83	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	319	317	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	20.25	20.75	**20.50**

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

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JobNo: SCE/BBMP/RL/17/2021-2022

Date: 07.06.2021

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : : **Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency: : **Sri. R Lokesh,** Contractor, Bangalore.

Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Source / Location Hot Mix Plant, Bangalore

BIS Code: IS 2386 Part (4):1963
Type of Mix: Dense Graded Bituminous Macadam
Date of test: 07.06.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	400	400	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	80	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	320	318	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	20.00	20.50	**20.25**

Comments:
→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

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JobNo: SCE/BBMP/RL/17/2021-2022

Date: 07.06.2021

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : : **Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency: : **Sri. R Lokesh,** Contractor, Bangalore.

Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Source / Location Hot Mix Plant, Bangalore

BIS Code: IS 2386 Part (4):1963
Type of Mix: Dense Graded Bituminous Macadam
Date of test: 07.06.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	400	400	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	85	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	315	313	
5	Aggregate Impact value = percent fines	21.25	21.75	**21.50**
	100* (W2/W1) percent			

Comments:
→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

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JobNo: SCE/BBMP/RL/17/2021-2022

Date 07.06.2021

TEST RESULTS OF AGGREGATE SHAPE TEST (Flakiness & Elongation)

Client : : Executive Engineer, RR Nagar Division,BBMP, Bangalore.
Agency: : Sri. R Lokesh, Contractor, Bangalore.
Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

BIS Code: IS 2386 Part (1):1963
Date of Test: 07.06.2021
Type of Mix: Dense Graded Bituminous Macadam

SLNo.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	12.30	10.60	22.90	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	14.10	13.50	27.60	

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JobNo: SCE/BBMP/RL/17/2021-2022

Date 07.06.2021

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : : Executive Engineer, RR Nagar Division,BBMP, Bangalore.
Agency: : Sri. R Lokesh, Contractor, Bangalore.
Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

BIS Code: IS 2386 Part (1):1963
Date of Test: 07.06.2021
Type of Mix: Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	10.30	9.60	10.20	19.90	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	14.20	14.80	12.60	29.00	

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 09.06.2021

Specific Gravity And Water Absorption Test

Client	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	07.06.2021 to 09.06.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2022	2023	2025	
2	Weight of basket suspended in water	W_2 g	754	754	754	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1268	1269	1271	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2016	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	747	747	747	
6	Weight of oven dried aggregate	W_4 g	2006	2008	2010	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.685	2.688	2.691	2.688
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.718	2.717	2.720	2.718
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.45%	0.40%	0.40%	0.42%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(As per MORTH table 500.8)

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 07.06.2021

Aggregate Gradation Test

Client	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	07.06.2021

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	632	6.3	6.32	93.68	90 - 100	
19.00	1124	11.2	17.56	82.44	71 - 95	
13.20	1285	12.9	30.41	69.59	56 - 80	
4.75	2635	26.4	56.76	43.24	38 - 54	
2.36	1124	11.2	68.00	32.00	28 - 42	
0.300	1356	13.6	81.56	18.44	7 - 21	
0.075	1247	12.5	94.03	5.97	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	625	6.3	6.25	93.75	90 - 100	
19	1247	12.5	18.72	81.28	71 - 95	
13.2	1222	12.2	30.94	69.06	56 - 80	
4.75	2635	26.4	57.29	42.71	38 - 54	
2.360	1024	10.2	67.53	32.47	28 - 42	
0.300	1356	13.6	81.09	18.91	7 - 21	
0.075	1125	11.3	92.34	7.66	2 - 8	

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 07.06.2021

Aggregate Gradation Test

Client	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, I.C.-4 A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	07.06.2021

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	628	6.3	6.28	93.72	90 - 100	
19.00	1247	12.5	18.75	81.25	71 - 95	
13.20	1369	13.7	32.44	67.56	56 - 80	
4.75	2574	25.7	58.18	41.82	38 - 54	
2.36	1120	11.2	69.38	30.62	28 - 42	
0.300	1239	12.4	81.77	18.23	7 - 21	
0.075	1356	13.6	95.33	4.67	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	636	6.4	6.36	93.64	90 - 100	
19	1347	13.5	19.83	80.17	71 - 95	
13.2	1025	10.3	30.08	69.92	56 - 80	
4.75	2569	25.7	55.77	44.23	38 - 54	
2.360	1245	12.5	68.22	31.78	28 - 42	
0.300	1289	12.9	81.11	18.89	7 - 21	
0.075	1424	14.2	95.35	4.65	2 - 8	

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Date: 07.06.2021

Aggregate Gradation Test

Client	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	07.06.2021

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	630	6.3	6.30	93.70	90 - 100	
19.00	1325	13.3	19.55	80.45	71 - 95	
13.20	1247	12.5	32.02	67.98	56 - 80	
4.75	2654	26.5	58.56	41.44	38 - 54	
2.36	1025	10.3	68.81	31.19	28 - 42	
0.300	1258	12.6	81.39	18.61	7 - 21	
0.075	1234	12.3	93.73	6.27	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	658	6.6	6.58	93.42	90 - 100	
19	1247	12.5	19.05	80.95	71 - 95	
13.2	1239	12.4	31.44	68.56	56 - 80	
4.75	2458	24.6	56.02	43.98	38 - 54	
2.360	1326	13.3	69.28	30.72	28 - 42	
0.300	1247	12.5	81.75	18.25	7 - 21	
0.075	1524	15.2	96.99	3.01	2 - 8	

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Job No.: SCE/BBMP/RL/17/2021-2022 Date: 10.06.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**: Executive Engineer,** RR Nagar Division, BBMP, Bangalore.
Agency	:	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	:	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	10.06.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.43	9.01	9 Kn (min)
2	Marshal flow, mm	3.96	3.82	2 – 4
3	Percent air voids in Mineral Aggregate	14.92	13.43	13 – 15
4	Voids in Compacted Mix	3.72	3.69	3 – 6
5	Percent Voids filled with Bitumen	67.12	69.05	65 - 75
6	Density, g/cc	2.26	2.27	--

Note:

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#B9-003, GANGA, Jnanabharathi Enclave,
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Job No.: SCE/BBMP/RL/17/2021-2022 Date: 10.06.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**: Executive Engineer,** RR Nagar Division, BBMP, Bangalore.
Agency	:	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	:	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	10.06.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.25	9.11	9 Kn (min)
2	Marshal flow, mm	3.36	3.85	2 – 4
3	Percent air voids in Mineral Aggregate	14.69	13.63	13 – 15
4	Voids in Compacted Mix	3.58	3.05	3 – 6
5	Percent Voids filled with Bitumen	67.47	69.12	65 - 75
6	Density, g/cc	2.26	2.25	--

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 11.06.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**: Executive Engineer,** RR Nagar Division, BBMP, Bangalore.
Agency	:	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	:	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	11.06.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.93	9.05	9 Kn (min)
2	Marshal flow, mm	3.12	3.91	2 – 4
3	Percent air voids in Mineral Aggregate	14.34	13.89	13 – 15
4	Voids in Compacted Mix	3.45	3.78	3 – 6
5	Percent Voids filled with Bitumen	67.56	69.67	65 - 75
6	Density, g/cc	2.28	2.26	--

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Job No.: SCE/BBMP/RL/17/2021-2022 Date: 12.06.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**: Executive Engineer,** RR Nagar Division, BBMP, Bangalore.
Agency	:	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	:	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	12.06.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.09	9.22	9 Kn (min)
2	Marshal flow, mm	3.23	3.91	2 – 4
3	Percent air voids in Mineral Aggregate	14.14	13.03	13 – 15
4	Voids in Compacted Mix	3.86	3.55	3 – 6
5	Percent Voids filled with Bitumen	67.18	69.64	65 - 75
6	Density, g/cc	2.27	2.25	--

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 10.06.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Date of Testing	10.06.2021

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477	477.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.00	22.50
7. Bitumen content in %	4.60	4.50
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	32.8	32.8	6.9	93.1	90 - 100
19	75.9	108.7	22.8	77.2	71 - 95
13.2	65.4	174.1	36.5	63.5	56 - 80
4.75	82.2	256.3	53.7	46.3	38 - 54
2.360	76.6	332.9	69.8	30.2	28 - 42
0.300	95.5	428.4	89.8	10.2	7 - 21
0.075	22.2	450.6	94.5	5.5	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	32.1	32.1	6.7	93.3	90 - 100
19	78.9	111	23.2	76.8	71 - 95
13.2	62.3	173.3	36.3	63.7	56 - 80
4.75	85.50	258.8	54.2	45.8	38 - 54
2.360	75.5	334.3	70.0	30.0	28 - 42
0.300	98.8	433.1	90.7	9.3	7 - 21
0.075	22.2	455.3	95.4	4.6	2 - 8

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 10.06.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, I.C-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Date of Testing	10.06.2021

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	476.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	23.50
7. Bitumen content in %	4.50	4.70
8. Average	4.60	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	32	32	6.7	93.3	90 - 100
19	75.8	107.8	22.6	77.4	71 - 95
13.2	62.1	169.9	35.6	64.4	56 - 80
4.75	80.2	250.1	52.4	47.6	38 - 54
2.360	75.5	325.6	68.2	31.8	28 - 42
0.300	92	417.6	87.5	12.5	7 - 21
0.075	25.6	443.2	92.8	7.2	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	32.2	32.2	6.8	93.2	90 - 100
19	78.5	110.7	23.2	76.8	71 - 95
13.2	65.5	176.2	37.0	63.0	56 - 80
4.75	72.10	248.3	52.1	47.9	38 - 54
2.360	85.5	333.8	70.1	29.9	28 - 42
0.300	93.6	427.4	89.7	10.3	7 - 21
0.075	23.3	450.7	94.6	5.4	2 - 8

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 11.06.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX
AASHTO T 164 & AASHTO T 30

Client	: **Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	: **Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Date of Testing	11.06.2021

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477	477.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.00	22.50
7. Bitumen content in %	4.60	4.50
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	22.8	22.8	4.8	95.2	90 - 100
19	73.3	96.1	20.1	79.9	71 - 95
13.2	68.9	165	34.6	65.4	56 - 80
4.75	82.2	247.2	51.8	48.2	38 - 54
2.360	72.1	319.3	66.9	33.1	28 - 42
0.300	95.5	414.8	87.0	13.0	7 - 21
0.075	25.9	440.7	92.4	7.6	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	32.8	32.8	6.9	93.1	90 - 100
19	82.2	115	24.1	75.9	71 - 95
13.2	65.2	180.2	37.7	62.3	56 - 80
4.75	76.60	256.8	53.8	46.2	38 - 54
2.360	82.1	338.9	71.0	29.0	28 - 42
0.300	96.6	435.5	91.2	8.8	7 - 21
0.075	20.5	456	95.5	4.5	2 - 8

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 12.06.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX
AASHTO T 164 & AASHTO T 30

Client	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
Date of Testing	12.06.2021

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477	476
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.00	24.00
7. Bitumen content in %	4.60	4.80
8. Average	4.70	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	25.6	25.6	5.4	94.6	90 - 100
19	72.2	97.8	20.5	79.5	71 - 95
13.2	68.1	165.9	34.8	65.2	56 - 80
4.75	80.2	246.1	51.6	48.4	38 - 54
2.360	72.3	318.4	66.8	33.2	28 - 42
0.300	96.6	415	87.0	13.0	7 - 21
0.075	25.6	440.6	92.4	7.6	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.9	36.9	7.8	92.2	90 - 100
19	83.3	120.2	25.3	74.7	71 - 95
13.2	62.1	182.3	38.3	61.7	56 - 80
4.75	72.20	254.5	53.5	46.5	38 - 54
2.360	82.1	336.6	70.7	29.3	28 - 42
0.300	96.5	433.1	91.0	9.0	7 - 21
0.075	22.3	455.4	95.7	4.3	2 - 8

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Job No.: SCE/BBMP/RL/17/2021-2022

Date: 14.06.2021

TEST REPORT

Client	:	**: Executive Engineer,** RR Nagar Division,BBMP, Bangalore.
Agency	:	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of the work	:	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	14.06.2021

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 °C, 1/10 mm	52	Min 45
2	Softening point, °C	54	Min. 47
3	Ductility at 27°C, cm	>100	Min. 40
4	Flash Point, °C	256	Min. 220

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